



Intelligent Storage for Digital Content



EXPERIENCE **MUSIC** PROJECT.  
emplive.com

### Applications

- Production and editing of music-related audio, video, and images for multimedia exhibits.
- Storage and playout of audio and video via HTTP to over 175 destinations throughout the museum.
- Fast, disk-based back-up for all digital content in the museum.

### Challenge

Three years of operating the world's most famous music museum around the clock was beginning to tax existing systems and resources. EMP needed a simple, highly-available network storage and delivery infrastructure that could streamline operations and minimize ongoing operating costs.

### Isilon IQ Benefits

EMP has installed more than 15 terabytes of Isilon IQ storage that:

- Provides a high-performance clustered storage system for a range of digital content applications.
- Reduces ongoing maintenance costs through standards-based technology.
- Meets EMP's stringent high availability requirements.

*"Isilon IQ has proven that we don't need a specialized storage administrator despite our rapid storage growth. And if we ever run into an issue, Isilon's support is second to none."*

— René Lopez  
Manager of IT Operations  
EMP

## ISILON IQ ELECTRIFIES EMP WITH NEW STORAGE INFRASTRUCTURE

### More Than 15 Terabytes Of Music History Stored On Isilon IQ® For Use Throughout The World's Most Famous Music Museum

Experience Music Project (EMP) is a one-of-a-kind music museum combining interactive and interpretive exhibits to tell the story of the expression that defines American popular music. Whether your musical preference is blues or hip-hop, country or rock 'n' roll, EMP gives visitors a wide range of dynamic opportunities to learn, play, explore and experience music, history and the creative process.

Educational programs for the public are the heart and soul of EMP, but technology is clearly its central nervous system—EMP defines leading-edge technology. The museum is powered by more than 1000 computerized Museum Exhibit Guides, 150 servers, 35 Gigabit Ethernet switches and enough cabling to go around the world. With 75 video displays and over 100 audio points, EMP also ensures that nearly every nook a visitor explores in the museum will provide a multi-sensory experience.

EMP has built and displayed some of the most significant musical multimedia exhibits ever created, combining terabytes of sounds and stories of a century of music with memorabilia and rare musical artifacts. One of its most recent exhibits, Sweet Home Chicago, which celebrates the Year of the Blues, was also its most storage-intensive to date, featuring rare performance footage of Chicago blues legends, interviews with Chicago blues musicians and producers in addition to other visuals and music.



"Year of the Blues" Multimedia Exhibit

### ***ISILON IQ STRIKES A CHORD***

Three and a half years after EMP's opening it became clear that the expenses for a technology-based museum were going to be a lot higher in the second three years than in the first three. The operating costs and the labor required to keep aging storage and delivery systems online, available, and expanding along with rapidly-growing content were going to be a challenge for a non-profit museum to support.

Brian Beaumont, director of technology explains, "When EMP opened in June of 2000, it included state-of-the-art proprietary technology. We talked of having over 150 servers and extensive cabling infrastructure. We realize now that due to advances in technology, what defined us initially is not necessarily what will define us in the future." Today EMP is looking to reduce its number of servers and minimize the amount of infrastructure that was necessary to support the first-of-its-kind technology in the museum's early days. The organization is headed in a direction of more open, more centralized and more manageable systems and Isilon IQ sits right in the center of that path.

The storage system the museum chose also had to be powerful enough to deliver real-time CD-quality audio, bandwidth-intensive HD-quality video, and detailed photos and graphics simultaneously to video screens, kiosks, and even the EMP Web site, where online visitors can view mini-documentaries, listen to artists, and view thousands of photos of the more than 100,000 EMP artifacts.

"Isilon IQ combines three key ingredients important for helping us move into the next phase of the museum's life: ease of management, standardization, and consistency," said René Lopez, EMP's manager of IT operations. "One of the cool things about Isilon IQ is that it embodies the characteristics of a SAN—namely scalability and performance—but uses a NAS implementation based on standard Gigabit Ethernet technology." Isilon IQ also makes it easy for EMP to stream video throughout its 200 systems using standard HTTP protocols, eliminating the costs of using proprietary systems and protocols.

### ***STORAGE TAKES CENTER STAGE IN RECORDING MUSIC HISTORY***

As a 501 (c)(3) educational charity, one of EMP's central missions is to preserve and share history about the birth of different genres of music. An interview with Leo Fender, creator of the first electric guitars, illustrates why storing firsthand accounts are imperative to this effort.

According to EMP's Technology Director, Brian Beaumont, "One of the things EMP does to preserve the history of American popular music is to record oral histories. In the oral history of Leo Fender, he disclosed that for the first five or six prototype electric guitars ever invented in 1945, he and his partner Frank Kaufman had to get parts from auto junk yards due to the scarcity of parts during World War II. When assembling the Guitar Gallery prior to opening EMP, we had wondered why the pickup on a K&F lap steel guitar said 'Ford' on it. Now we knew we had one of the world's first electric guitars in our collection.

If we weren't recording these oral histories, this story would have been lost forever. Isilon IQ makes it easy and efficient for us to preserve this history, as well as add capacity for new music, video, and other types of historical content, find that content, edit it, and repurpose it in exhibits throughout the museum."

Lopez picks up the story, "Prior to Isilon IQ, EMP systems engineers used to spend an average of five hours a week trying to find content to erase or cut to DVD so they could make room for new content on their myriad servers." When space was near capacity, EMP system engineers used to have to go to at least seven different places, figure out where there was the most space, and where to add the new capacity. Then it took several hours, sometimes longer, to add space and rebalance data.



René Lopez, manager of IT operations, and Brian Beaumont, director of technology, show off 15 TB of Isilon IQ storage.

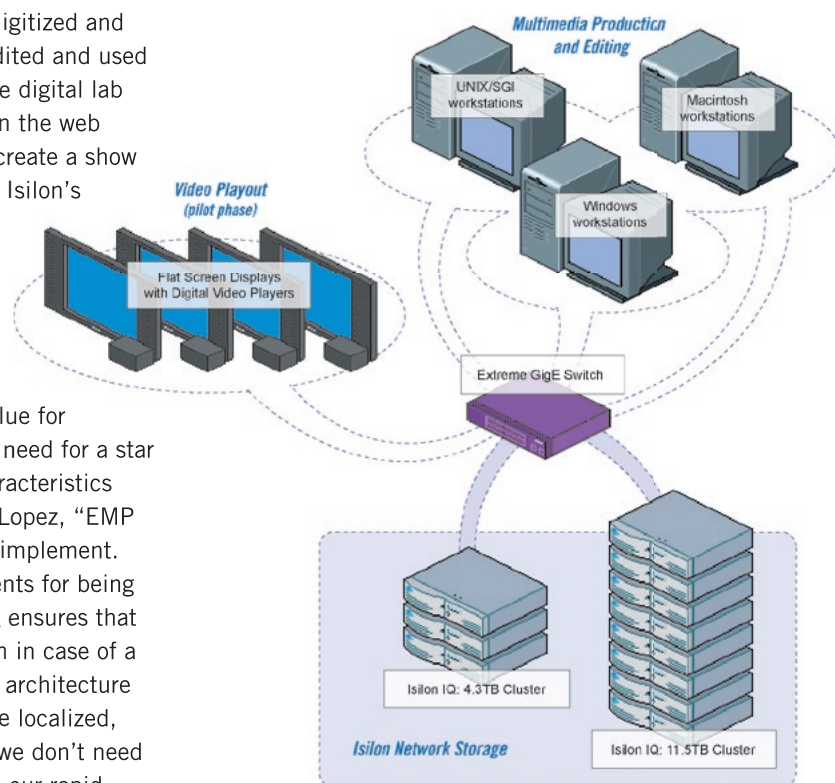
## A STAR PERFORMANCE

The modular design of Isilon IQ allows EMP to manage the growth of its data linearly. Systems engineers no longer are faced with haphazard spot growth—now when new capacity is needed and it's as simple as adding a node. Lopez continues, "It's so much easier to manage one large cluster node by node instead of adding new drives and re-jiggering everything only to find out the server had a different configuration and we weren't able to add space after all. The ability to expand performance and capacity across one big cluster, without downtime is critical an environment that is only closed for 8 hours a night.

The duplication of content and the process of manually moving it around also used to be a source of pain for EMP. Each piece of content can be used in as many as 10 different ways at the museum. Original video content like a historic blues show, for instance is digitized and saved in a high quality format. Then it's edited and used in multimedia exhibits, manipulated for the digital lab in an educational package and streamed on the web site. For Chicago Blues, EMP also helped create a show available for distribution over public radio. Isilon's OneFS™ distributed file system provides EMP artists and editors with a single pool of standards-based storage on which to find content for assembling accounts and music for new exhibits.

EMP chose Isilon because of its unique value for digital content, but that didn't remove the need for a star performer in standard enterprise-class characteristics like availability and support. According to Lopez, "EMP is a workhorse for whatever technology we implement. A lot of products don't meet our requirements for being able to operate 363 days a year." Isilon IQ ensures that EMP will be rocking around the clock, even in case of a disk or node failure. And Isilon's clustered architecture means that any necessary replacements are localized, and easy to fix. "Isilon IQ has proven that we don't need a specialized storage administrator despite our rapid storage growth. And if we ever run into an issue, Isilon's support is second to none."

Brian Beaumont concludes, "Every dollar that we save acquiring or managing EMP's world-class technology can be spent on furthering our educational mission, whether it is to offer children an exciting and interactive learning experience in the museum, provide music lessons for inner city youth, write educational curriculum for high schools and colleges, or provide workshops for teachers and other adults. The time and money Isilon IQ will save us, both in upfront acquisition costs and ongoing operating costs, means we can use those dollars to expose hundreds of thousands of visitors and tens of thousands of school kids to the study of creativity, inspiration and innovation in the form of music. That's my bottom line."



Isilon IQ is a Key Component of EMP's Technology Infrastructure

**Isilon Systems, Inc.**  
220 West Mercer Street  
Seattle, WA 98119

**T** 206-315-7500  
**F** 206-315-7501  
**E** sales@isilon.com

[www.isilon.com](http://www.isilon.com)

